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SIXTH ADDENDUM
TO THE
BRITISH PHARMACOPŒIA
1932

PUBLISHED UNDER THE DIRECTION OF

THE GENERAL COUNCIL OF
MEDICAL EDUCATION AND REGISTRATION
OF THE UNITED KINGDOM

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NOTICE

By Section 2 of the Medical Council Act, 1862, the exclusive right of publishing, printing, and selling the British Pharmacopœia is vested in the General Council of Medical Education and Registration of the United Kingdom.

The British Pharmacopœia, 1932, superseded previous issues of the British Pharmacopœia, being for all purposes deemed to be substituted for such previous issues.

The Addendum, 1936, the Second Addendum, 1940, the Third Addendum, 1941, the Fourth Addendum, 1941, and the Fifth Addendum, 1942, altered and amended the British Pharmacopœia, 1932, and this Sixth Addendum effects further alterations and emendations. The General Notices and Appendices included in the British Pharmacopœia, 1932, the Addendum, 1936, and subsequent Addenda apply to all matter contained in this Addendum, unless the contrary is specifically stated.

This Addendum has the same authority as the British Pharmacopœia, 1932, as amended by the Addendum, 1936, and subsequent Addenda. Monographs or appendices of the British Pharmacopœia, 1932, or of these Addenda, which are amended by this Sixth Addendum, supersede, in their amended forms, the original monographs or appendices.

NOTICE CONCERNING OINTMENTS

The monographs on certain ointments of the British Pharmacopœia, 1932, or Addenda, are amended by this Addendum, and the new formulæ contained herein are now official. Ointments prepared according to the original formulæ of the British Pharmacopœia, 1932, or Addenda, may be dispensed or supplied during the period of six months immediately following the date of publication of this Addendum.

PREFACE

TO THE SIXTH ADDENDUM TO THE BRITISH PHARMACOPŒIA, 1932

SECTION 54 of the Medical Act, 1858, provides that the General Council of Medical Education and Registration of the United Kingdom 'shall cause to be published under their direction a Book containing a list of medicines and compounds, and the manner of preparing them, together with the true weights and measures by which they are to be prepared and mixed, and containing such other matter and things relating thereto as the General Council shall think fit, to be called "The British Pharmacopœia"; and the General Council shall cause to be altered, amended, and republished, such Pharmacopœia as often as they shall deem it necessary.'

This Addendum to the British Pharmacopœia, 1932, has been prepared by the British Pharmacopœia Commission and approved by the Pharmacopœia Committee of the Council in the discharge of the duty entrusted to them by the Standing Orders of the Council to deal with all matters relating to the preparation and publication of the British Pharmacopœia.

The Pharmacopœia Committee of the Council, in a Report made by it to the Council in accordance with the Standing Orders, has conveyed to the Council a cordial expression of its appreciation of the work done by the Commission in preparing this Addendum; and also by the persons and bodies, both in this country and abroad, by whose collaboration that task has been facilitated.

GENERAL MEDICAL COUNCIL OFFICE,
44 HALLAM STREET, PORTLAND PLACE,
LONDON, W.1.

THE
BRITISH
PHARMACOPŒIA COMMISSION

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---

* Dr. A. P. Beddard, Consulting Physician to Guy's Hospital, was Chairman of the Commission until his death in November 1939.

Additions to the British Pharmacopœia, 1932

Acetomenaphthonum
Acidum Ricinoleicum
Alcoholia Lanæ
Chloroxylenol
Dithranol
Injectio Procainæ et Adrenalinæ Mitis
Kaolinum Leve
Liquor Chloroxylenolis
Menaphthonum
Nicotinamidum
Riboflavina
Stilbœstrol
Terpineol
Unguentum Alcoholium Lanæ
Unguentum Dithranolis

Appendix X.E. Determination of Acetyl Value of Wool Alcohols

Monograph added to the British Pharmacopœia, 1932, by Notice in the London, Edinburgh, Belfast and Dublin Gazettes, with effect from June 12th, 1942

Syrupus Ferri Phosphatis cum Strychnina

Monographs of the British Pharmacopœia, 1932, and Addenda, which were amended by Notice in the London, Edinburgh, Belfast and Dublin Gazettes,

with effect from June 12th, 1942

Syrupus Ferri Phosphatis cum Quinina et Strychnina

with effect from January 11th, 1943

Extractum Cascaræ Sagradæ Siccum
Ferri Sulphas Exsiccatus
Paraffinum Molle Album

MONOGRAPHS OF THE BRITISH PHARMACOPŒIA, 1932, AND ADDENDA, WHICH ARE AMENDED BY THE SIXTH ADDENDUM

Acetum Scillæ
Acidum Mandelicum
Atropinæ Sulphas
Ergota
Ergota Præparata
Ferri Carbonas Saccharatus
Insulinum
Ipecacuanha
Ipecacuanha Pulverata
Magnesii Trisilicas
Mepacrinæ Hydrochloridum
Mepacrinæ Methanosulphonas
Pamaquinum
Sulphanilamidum
Unguentum Acidi Borici
Unguentum Acidi Salicylici
Unguentum Acidi Tannici
Unguentum Aquosum
Unguentum Hamamelidis
Unguentum Hydrargyri
Unguentum Hydrargyri Ammoniati
Unguentum Hydrargyri Oleati
Unguentum Hydrargyri Subchloridi
Unguentum Sulphuris
Unguentum Zinci Oleatis
Unguentum Zinci Oxidi

APPENDICES TO THE BRITISH PHARMACOPŒIA, 1932, AND ADDENDA, WHICH ARE AMENDED BY THE SIXTH ADDENDUM

Appendix I.	Materials and Solutions Employed in Tests.
Appendix IV.A.	Determination of Freezing-point, of Melting-point and of Solidifying-point.
Appendix VI.	Quantitative Test for Lead.
Appendix VII.	Quantitative Test for Arsenic.

CHANGES IN OFFICIAL NAMES

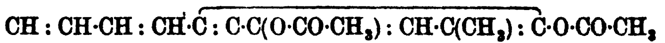
Former Names	New Names
Injectio Procainæ et Adrenalinæ	Injectio Procainæ et Adrenalinæ Fortis
Kaolinum	Kaolinum Ponderosum
Unguentum Zinci Oxidi	Unguentum Zinci Oxidi Anhydrosum

MONOGRAPHS

ACETOMENAPHTHONUM

[Acetomenaphthon.]

Acetomenaphthone



$\underline{CH : CH{\cdot}CH : CH{\cdot}C} : C{\cdot}C(O{\cdot}CO{\cdot}CH_3) : CH{\cdot}C(CH_3) : C{\cdot}O{\cdot}CO{\cdot}CH_3$

Mol. Wt. 258·1

Acetomenaphthone is 1 : 4-diacetoxy-2-methyl-naphthalene, and may be prepared by reducing 2-methyl-1 : 4-naphthaquinone with zinc and acetic acid in the presence of acetic anhydride.

Characters. A white, crystalline powder; odourless, or has a slight odour of acetic acid.

Almost insoluble in *water*; slightly soluble in cold *alcohol* (*95 per cent.*); soluble in 3·3 parts of boiling *alcohol* (*95 per cent.*) and in *acetic acid.*

Tests for Identity. Warm about 0·05 gramme with 5 millilitres of *N/10 sodium hydroxide* for a few minutes, cool, add a few drops of *solution of hydrogen peroxide*, neutralise with *dilute hydrochloric acid*, collect the precipitate on a filter and wash with *water*; the precipitate complies with the **Test for Identity** described under 'Menaphthonum'; the filtrate yields the *reactions* characteristic of acetates.

Tests for Purity. *Melting-point*, 112° to 114°.

Heat 1 gramme with 10 millilitres of *dilute hydrochloric acid*, filter and wash the residue with sufficient hot *water* to yield 50 millilitres of filtrate; add 1 millilitre of *solution of potassium ferrocyanide*; the turbidity produced is not greater than that produced by adding 1 millilitre of *solution of potassium ferrocyanide* and 10 millilitres of *dilute hydrochloric acid* to a solution of 0·0002 gramme of *zinc sulphate* in 40 millilitres of *water* (limit of zinc).

Loses, when dried at 80°, not more than 1 per cent. of its weight.

Leaves, on incineration, not more than 0·05 per cent. of residue.

DOSES

Metric.	**Imperial.**
0·01 to 0·06 gramme.	**1/8 to 1 grain.**

ACETUM SCILLÆ

[Acet. Scill.]

Vinegar of Squill

Vinegar of Squill contains active constituents approximately equivalent to 10 per cent. w/v of Squill.

Squill, or Indian Squill, bruised	100 grammes
Dilute Acetic Acid . . .	1000 millilitres

Macerate the Squill with the Dilute Acetic Acid for seven days, with occasional agitation. Drain off the liquid ; press the marc ; mix the two liquids and heat to boiling. Set aside for not less than seven days ; filter.

Tests for Purity. *Specific gravity* (15·5°/15·5°), 1·020 to 1·035.

10 millilitres, diluted with 10 millilitres of *water*, requires for neutralisation not less than 9·0 millilitres, and not more than 10·5 millilitres, of *N/1 sodium hydroxide, solution of phenolphthalein* being used as indicator (limits of acidity).

Preparation. Syrupus Scillæ.

DOSES

Metric.	**Imperial.**
0·6 to 2 mils.	**10 to 30 minims.**

ACIDUM MANDELICUM

[Acid. Mandelic.]

Mandelic Acid

Synonym. Phenylglycollic Acid.

Fourth Addendum to the British Pharmacopœia, 1932, page 1.

Tests for Purity.

delete

" Complies with the test for limit of chlorinated compounds described under ' Acidum Benzoicum '."

insert

" Mix 2 grammes with 50 millilitres of *amyl alcohol* in a dry flask, add in small quantities at a time 3 grammes of *sodium* ; connect the flask to a reflux air condenser ; warm gently until the evolution of hydrogen ceases, and boil gently for one hour. Cool the liquid to a little below 100°, add 50 millilitres of *water*, 5 millilitres of *N/10 silver nitrate* and 20 millilitres of *nitric acid* and titrate with *N/10 ammonium thiocyanate*, using *solution of ferric ammonium sulphate* as indicator; not less than 3·3 millilitres of *N/10 ammonium thiocyanate* is required (limit of chlorinated compounds)."

ACIDUM RICINOLEICUM

[Acid. Ricinoleic.]

Ricinoleic Acid

Ricinoleic Acid is a mixture of fatty acids obtained by the hydrolysis of castor oil.

Characters. A yellow, or yellowish-brown, viscous liquid ; odour and taste, characteristic.

Insoluble in *water* ; soluble in *alcohol* (*95 per cent.*) and in *ether*.

Tests for Identity and Purity. *Specific gravity* (15·5°/15·5°), 0·945 to 0·948 ; *refractive index* at 40°, 1·462 to 1·468 ; *acid value*, not less than 175 ; *iodine value*, 85 to 91.

Does not congeal to a solid mass until cooled below 4°.

ALCOHOLIA LANÆ

[Alcohol. Lan.]

Wool Alcohols

Wool Alcohols may be prepared by the saponification of the grease of the wool of sheep, and the separation of the fraction containing cholesterol and other alcohols. It contains not less than 28 per cent. of cholesterol.

Characters. A golden-brown solid, somewhat brittle when cold, but becoming plastic when warm; odour, faint and characteristic. Fracture, smooth and shiny.

Insoluble in *water*; moderately soluble in *alcohol (90 per cent.)*; freely soluble in *ether*, in *chloroform* and in *light petroleum*.

Test for Identity. Dissolve 0·5 gramme in 5 millilitres of *chloroform*, add 1 millilitre of *acetic anhydride* and 2 drops of *sulphuric acid*; a green colour is produced.

Tests for Purity. *Melting-point*, not below 54°; *acid value*, not more than 3; *saponification value* (two hours' boiling with the alcoholic solution of *potassium hydroxide*) not more than 12; *acetyl value*, 130 to 140.

Completely soluble in 25 parts of boiling *dehydrated alcohol*.

Dissolve 2 grammes in 25 millilitres of hot *alcohol (90 per cent.)* which has been freshly boiled and neutralised while hot after the addition of 2·5 millilitres of *solution of phenolphthalein*; no red colour is produced (absence of free alkali).

Loses, when heated at 100° for one hour, not more than 0·5 per cent. of its weight.

Leaves, on incineration, not more than 0·3 per cent. of residue.

Assay. Dissolve 0·1 gramme, accurately weighed, in 12 millilitres of *alcohol (90 per cent.)*, allow to stand at laboratory temperature for twelve hours, filter through a Gooch crucible and wash with 5 millilitres of *alcohol (90 per cent.)*; to the filtrate and washings add 40 millilitres of a 0·5 per cent. w/v solution of *digitonin* in *alcohol (90 per cent.)* and warm to 60°. Collect the precipitate in a Gooch crucible, wash with *alcohol (90 per cent.)* and dry at 100°. Each gramme of residue is equivalent to 0·239 gramme of cholesterol.

Preparation. Unguentum Alcoholium Lanæ

ATROPINÆ SULPHAS

[Atrop. Sulph.]

Atropine Sulphate

British Pharmacopœia, 1932, page 76, line 10, for "2 per cent. w/v" read "1·5 per cent. w/v".

CHLOROXYLENOL

[Chloroxylenol.]

Chloroxylenol

Synonym. *Para*chloro*meta*xylenol.

$(CH_3)_2 \cdot C_6H_2(Cl) \cdot OH$ [$CH_3 : Cl : CH_3 : OH = 1:2:3:5$] Mol.Wt.156.5

Chloroxylenol is 2-chloro-5-hydroxy-1 : 3-dimethylbenzene, and may be prepared by the interaction of xylenol and sulphuryl chloride.

Characters. White to creamy white crystals, or a crystalline powder; odour, characteristic.

Soluble in about 3000 parts of *water*; more soluble in hot *water*; soluble in *alcohol*, in *ether*, in *benzene*, in terpenes, in fixed oils and in solutions of alkali hydroxides. Volatile in steam.

Tests for Identity. To a saturated aqueous solution add 1 drop of *test-solution of ferric chloride*; no bluish colour is produced (distinction from chlorocresol).

Mix 0·05 gramme with 0·5 gramme of *anhydrous sodium carbonate* and ignite strongly; cool, boil the residue with 5 millilitres of *water*, acidify with *nitric acid*, filter and add *solution of silver nitrate*; a white precipitate is produced.

Tests for Purity. *Melting-point* 114° to 115·5°.

Leaves, on incineration, not more than 0·1 per cent. of residue.

Preparation. Liquor Chloroxylenolis.

DITHRANOL

[Dithranol]

Dithranol

Synonym. Dioxyanthranol.

$C_{14}H_{10}O_3$ . . . . . Mol. Wt. 226·1

Dithranol is 1 : 8-dihydroxyanthranol, $C_{14}H_7(OH)_3$, and may be prepared by the reduction of 1 : 8-dihydroxyanthraquinone.

Characters. A yellow powder; odourless; tasteless.

Insoluble in *water*; slightly soluble in *alcohol* (*95 per cent.*) and in *ether*; soluble in *chloroform*, in *acetone*, in *benzene* and in fixed oils.

Tests for Identity and Purity. *Melting-point*, 174° to 178°.

0·005 gramme dissolved in 5 millilitres of an approximately 4 per cent. w/v solution of *sodium hydroxide* in *water* forms a clear, slightly fluorescent, yellow or orange solution which turns red on exposure to air (distinction from 1 : 2-dihydroxyanthranol).

Dissolve about 0·001 gramme in a few drops of *sulphuric acid*; a clear orange solution, with no trace of violet colour, is produced (absence of dihydroxyanthraquinone).

0·1 gramme dissolves completely in 5 millilitres of hot *benzene*, forming a clear yellow or orange solution.

Loses, when dried at 100°, not more than 1 per cent. of its weight.

Leaves, on incineration, not more than 0·1 per cent. of residue.

Preparation. Unguentum Dithranolis.

ERGOTA

[Ergot.]

Ergot

Synonym. Secale cornutum I.A.

Ergot is the sclerotium of *Claviceps purpurea* Tulasne, arising in the ovary of *Secale cereale* Linn. It contains not more than 2 per cent. of other organic matter and not less than 0·2 per cent. of the total alkaloids of Ergot, calculated as ergotoxine, of which not less than 15 per cent. consists of water-soluble alkaloids of Ergot, calculated as ergometrine.

Characters. Dark violet to nearly black; usually from about 1 to 4 centimetres long and from 2 to 7 millimetres broad, fusiform, obscurely 3 or 4 sided, straight or arcuate; often with a longitudinal furrow on each face and transversely cracked; brittle; fracture, short; internally, whitish or pinkish-white, and showing darker lines radiating from the centre. Outer region, thin, of a few layers of dark purple to dark brown, collapsed cells in regular longitudinal rows; remainder of the sclerotium of dense pseudo-parenchyma, small rounded or oval cells, varying in size, somewhat elongated in the central region, usually less than 15 microns in diameter, with thin, colourless, highly refractive, chitinous walls; cell contents, fixed oil and protein as oil-plasma. Odour and taste, characteristic.

Assay. *For total alkaloids.* Extract 10 grammes in *moderately fine powder* with *light petroleum* (*boiling-point 40° to 50°*) in a *continuous extraction apparatus* until the fat is completely removed. Dry the extracted drug at a temperature not exceeding 40° and transfer to a porcelain dish. Add sufficient *anæsthetic ether* to form a semi-liquid mass, then add 8 millilitres of *dilute solution of ammonia* and stir thoroughly with a glass rod. Allow most of the ether to evaporate, return the residue to the *continuous extraction apparatus* and exhaust with 100 millilitres of *anæsthetic ether*, the extraction being continued for about five hours. Filter the ethereal liquid through a small filter, wash the flask and filter with small quantities of *anæsthetic ether* until a total volume of about 110 millilitres is obtained, and add 20 millilitres of *acetone*. Shake the solution with successive quantities of 20, 10, 10 and 10 millilitres of a 1 per cent. w/v solution of *tartaric acid* in *water*, mix the acid solutions and remove dissolved solvents at room temperature under reduced pressure. Dilute to 50 millilitres with *water*. Mix 1 millilitre with 2 millilitres of *solution of dimethylaminobenzaldehyde*, and allow to stand for five minutes. Mix 1 millilitre of *solution of ergotoxine ethanesulphonate* with 2 millilitres of *solution of dimethylaminobenzaldehyde*, and allow to stand for five minutes. Determine the ratio of the colour intensities by comparing them in a suitable colorimeter. The colour produced by 1 millilitre of *solution of ergotoxine ethanesulphonate* is equivalent to that produced by 0·0001 gramme of total alkaloids calculated as ergotoxine. The acid solution of the alkaloids should be suitably diluted so that the colour produced during the test, does not differ by more than 20 per cent. from that produced in the *solution of ergotoxine ethanesulphonate*. Calculate the percentage of total alkaloids in the drug in terms of ergotoxine.

For water-soluble alkaloids. Transfer 25 millilitres of the acid solution of the alkaloids to a separator and make alkaline with *dilute solution of ammonia*. Shake with successive quantities of 40, 30, 30 and 20 millilitres of *anæsthetic ether*; mix the ethereal liquids and wash by shaking with five successive quantities, each of 40 millilitres, of *water*, made faintly alkaline to *litmus paper* with *dilute solution of ammonia*, and saturated with *anæsthetic ether*. Shake the washed ethereal solution with successive quantities of 10, 5, 5 and 5 millilitres of a 1 per cent. w/v solution of *tartaric acid* in *water*, mix the acid solutions and remove dissolved ether at room temperature under reduced pressure. Dilute to 25 millilitres with *water* and compare with *solution of ergotoxine ethanesulphonate* as described in the Assay for total alkaloids. Calculate the percentage of water-insoluble alkaloids in the drug in terms of ergotoxine; subtract this figure from the percentage of total alkaloids, previously determined; the difference multiplied by 0·538 gives the percentage of water-soluble alkaloids, calculated as ergometrine.

Storage. Ergot should be thoroughly dried and kept entire, and stored in a cool place. If Ergot is powdered and stored without immediate removal of the fat, the alkaloidal content decreases.

Preparations. Ergota Præparata.
Extractum Ergotæ Liquidum.

When Ergota, Pulvis Ergotæ, or Powdered Ergot is prescribed, Ergota Præparata shall be dispensed.

ERGOTA PRÆPARATA

[Ergot. Præp.]

Prepared Ergot

Prepared Ergot is Ergot which has been powdered and immediately deprived of most of its fat. It contains 0·2 per cent. of total alkaloids of Ergot, calculated as ergotoxine (limits 0·19 to 0·21), of which not less than 15 per cent. consists of water-soluble alkaloids of Ergot, calculated as ergometrine.

Percolate Ergot, recently reduced to *moderately fine powder*, with *light petroleum* (*boiling-point, 40° to 50°*), until 1 millilitre of the percolate leaves not more than a barely perceptible film, when evaporated in a glass basin. Dry the powder by exposure to air, completing the drying, if necessary, in a current of air at a temperature not exceeding 40°. Determine the proportion of total alkaloids in the powder by the Assay described below. To the remainder add, if necessary, in order to produce a Prepared Ergot of the required strength, a sufficient quantity of a powder similarly defatted, prepared from ergot of lower alkaloidal content but otherwise complying with the requirements described under ‘ Ergota ’, or of the powder obtained by drying the marc remaining when Liquid Extract of Ergot has been prepared.

Test for Purity. Yields on extraction with *light petroleum* (*boiling-point, 40° to 50°*) in a *continuous extraction apparatus* not more than 5 per cent. of fat.

Assay. Weigh accurately 10 grammes, extract with *light petroleum* (*boiling-point 40° to 50°*) in a *continuous extraction apparatus* until any fat present is completely removed, and complete the Assay as directed under 'Ergota', commencing with the words 'transfer to a porcelain dish . . .'

Storage. Prepared Ergot should be kept in a well-closed container and stored in a cool, dry place.

DOSES

Metric	**Imperial.**
0·15 to 0·5 gramme	**$2^1/_2$ to 8 grains.**

Prepared Ergot contains in 0·5 gramme 0·001 gramme, and in 8 grains $^1/_{60}$ grain, of the total alkaloids of Ergot, calculated as ergotoxine, and in 0·5 gramme 0·00015 gramme, and in 8 grains $^1/_{400}$ grain, of the water-soluble alkaloids of Ergot, calculated as ergometrine.

EXTRACTUM CASCARÆ SAGRADÆ SICCUM

[Ext. Casc. Sagr. Sicc.]

Dry Extract of Cascara Sagrada

When Extractum Cascaræ Sagradæ Siccum, or Dry Extract of Cascara Sagrada, is prescribed or demanded an Extract prepared according to the following formula may be dispensed or supplied:—

Mix 900 grammes of cascara sagrada, in coarse powder, with 4000 millilitres of boiling water, and macerate the mixture during three hours. Then transfer it to a percolator, allow it to drain, and exhaust it by percolation, using boiling water as the menstruum and collecting about 5000 millilitres of percolate. Evaporate the percolate to dryness, reduce the extract to a fine powder, and add sufficient starch, dried at 100°, to make the product weigh 300 grammes. Mix the powders thoroughly and pass the Extract through a fine sieve.

FERRI CARBONAS SACCHARATUS

[Ferr. Carb. Sacch.]

Saccharated Iron Carbonate

The *Arsenic limit* is changed from " 5 parts per million ' to " 10 parts per million,"

FERRI SULPHAS EXSICCATUS

[Ferr. Sulph. Exsic.]

Exsiccated Ferrous Sulphate

The requirement for content of $FeSO_4$ is changed from "not less than 80 per cent." to "not less than 77 per cent."

INJECTIO PROCAINÆ ET ADRENALINÆ

[Inj. Procain. et Adrenal.]

Injection of Procaine and Adrenaline

Fourth Addendum to the British Pharmacopœia, 1932, page 16, the titles are changed to:—

INJECTIO PROCAINÆ ET ADRENALINÆ FORTIS

[Inj. Procain. et Adrenal. Fort.]

Strong Injection of Procaine and Adrenaline

INJECTIO PROCAINÆ ET ADRENALINÆ MITIS

[Inj. Procain. et Adrenal. Mit.]

Weak Injection of Procaine and Adrenaline

Weak Injection of Procaine and Adrenaline is prepared, immediately before use, by mixing Sterile Solution of Procaine Hydrochloride (2 per cent. w/v) with three times its volume of Physiological Solution of Sodium Chloride and adding the specified proportion of Solution of Adrenaline Hydrochloride.

1. *Preparation of Sterile Solution of Procaine Hydrochloride (2 per cent. w/v).*

Procaine Hydrochloride . .	5 grammes
Sodium Chloride	2 grammes
Chlorocresol	0·25 gramme
Distilled Water, freshly prepared, sufficient to produce	250 millilitres

Dissolve the Chlorocresol in about 200 millilitres of freshly prepared Distilled Water with the aid of gentle heat. Cool. Dissolve the Procaine Hydrochloride and the Sodium Chloride in this solution, and add sufficient freshly prepared Distilled Water to produce 250 millilitres. Distribute the solution in suitable containers and finally seal. When the volume in each container does not exceed 30 millilitres, expose the containers to a temperature of 98° to 100° for thirty minutes; when the volume in each container exceeds 30 millilitres, expose the containers for a longer time, sufficient to ensure that the whole of the solution in each container is maintained at a temperature of 98° to 100° for thirty minutes.

The containers comply with the tests for *limit of alkalinity of glass.*

Labelling. The containers must be labelled:—

STERILE SOLUTION OF PROCAINE HYDROCHLORIDE
(2 per cent. w/v) for preparing Weak Injection of
Procaine and Adrenaline.

CAUTION.—For the preparation of Weak Injection of Procaine and Adrenaline this Solution must be mixed, *immediately before use,* with three times its volume of Physiological Solution of Sodium Chloride for Injections, and with Solution of Adrenaline Hydrochloride in the proportion of 2 millilitres to each 1000 millilitres of the Injection.

Storage. Sterile Solution of Procaine Hydrochloride (2 per cent. w/v) should be kept protected from light.

2. *Preparation of Weak Injection of Procaine and Adrenaline*

Sterile Solution of Procaine Hydrochloride (2 per cent. w/v) .	250 millilitres
Physiological Solution of Sodium Chloride for Injections . .	750 millilitres
Solution of Adrenaline Hydrochloride	2 millilitres

Mix, immediately before use.

**

DOSES

For infiltration anæsthesia.

Metric.	**Imperial.**
Up to 300 mils.	**Up to $10^1/_2$ fluid ounces**

INSULINUM

[Insulin.]

Insulin

Addendum, 1936, to the British Pharmacopœia, 1932, pages 40 and 41.

Storage. The statement is changed to:

"Insulin in solution should be kept at as low a temperature as possible above its freezing-point, and should not be exposed to temperatures exceeding 20°. Under these conditions the product may be expected to retain its potency for at least two years after the date of manufacture, provided that the reaction lies between the limits of *p*H 3 and *p*H 4."

IPECACUANHA

[Ipecac.]

Ipecacuanha

Synonyms. Ipecacuanhæ Radix: Ipecacuanha Root.

Ipecacuanha consists of the dried root or the rhizome and root of *Cephaëlis Ipecacuanha* (Brot.) A. Rich. It contains not more than 1 per cent. of other organic matter and not less than 2 per cent. of the total alkaloids of Ipecacuanha, calculated as emetine, of which not less than 55 per cent. consists of non-phenolic alkaloids, calculated as emetine.

Characters. Root, somewhat tortuous pieces, seldom more than 15 centimetres long or 6 millilitres thick; from brownish-grey to dark brown; closely annulated externally, ridges rounded and completely encircling the root or surrounding about four-fifths of it; fracture, short in the bark and splintery in the wood, the smoothed transverse surface showing a wide greyish bark and a small uniformly dense wood. Rhizome, short lengths attached to roots, cylindrical, up to 2 millimetres in diameter, finely wrinkled longitudinally and with pith approximately one-sixth of the whole diameter. Root, bark consisting of a thin brown cork layer, a wide parenchyma consisting of thin-walled, polyhedral cells containing much starch with many compound grains of 2 to 8 components and some simple grains, individual grains oval, rounded or muller-shaped rarely more than 15 microns in diameter, also some idioblasts each containing a bundle of acicular calcium oxalate crystals, 30 to 80 microns long; phloem in thin wedges projecting into the parenchyma; xylem dense, consisting of tracheids 10 to 20 microns wide with oval pits, small tracheidal vessels, frequently with round lateral perforations, substitute fibres containing starch grains and having rounded pits, and xylem fibres; lignified medullary rays containing starch grains. Rhizome, vascular tissue peripheral with larger vessels; pericycle with thick-walled pitted sclereids; protoxylem with spiral vessels; xylem with fibres having linear pits; pith with isodiametric lignified cells with rather thin walls. Odour, slight; taste, bitter.

Test for Purity. *Ash,* not more than 5 per cent.; *acid-insoluble ash,* not more than 2 per cent.

Assay. *See* British Pharmacopœia, 1932, pages 237 and 238 and Addendum 1936, page 41.

Preparations. Extractum Ipecacuanhæ Liquidum.
Tinctura Ipecacuanhæ.
Ipecacuanha Pulverata.
Pulvis Ipecacuanhæ et Opii.
Trochiscus Morphinæ et Ipecacuanhæ.

When Ipecacuanha is prescribed, Ipecacuanha Pulverata shall be dispensed.

IPECACUANHA PULVERATA

[Ipecac. Pulverat.]

Powdered Ipecacuanha

Synonyms. Powdered Ipecacuanha Root: Pulvis Ipecacuanhæ.

Powdered Ipecacuanha is Ipecacuanha, reduced to a *fine powder* and adjusted, if necessary, by the admixture in suitable proportions of powdered ipecacuanha of lower alkaloidal content, but otherwise complying with the requirements described under ‘ Ipecacuanha ’, or of powdered exhausted Ipecacuanha, or by the addition of powdered Lactose, to contain 2 per cent. of the total alkaloids of Ipecacuanha, calculated as emetine (limits, 1·9 to 2·1), of which not less than 55 per cent. consists of non-phenolic alkaloids, calculated as emetine.

Test for Purity. *Ash,* not more than 5 per cent.; *acid-insoluble ash,* not more than 2 per cent.

Assay. *For total alkaloids.* Weigh accurately 10 grammes, transfer to a flask, and add 100 millilitres of a mixture of 3 volumes of *ether* and 1 volume of *chloroform.* Shake well and frequently during fifteen minutes and set aside for ten minutes, add 2·5 millilitres of *strong solution of ammonia* and 5 millilitres of *alcohol (95 per cent.),* and, complete the Assay as directed under ‘ Ipecacuanha ’, commencing with the words ‘ and shake frequently during one hour . . . ’

For non-phenolic alkaloids. Carry out the Assay for non-phenolic alkaloids, as directed under ‘ Ipecacuanha ’.

Storage. Powdered Ipecacuanha should be kept in a well-closed container and stored in a cool place.

Preparations. Pulvis Ipecacuanhæ et Opii.
Trochiscus Morphinæ et Ipecacuanhæ.

DOSES

Metric.	**Imperial.**
0·03 to 0·12 gramme.	**$^{1}/_{2}$ to 2 grains.**
Emetic Doses	
1 to 2 grammes.	**15 to 30 grains.**

Powdered Ipecacuanha contains in 0·12 gramme 0·0024 gramme and in 2 grains about $^{1}/_{25}$ grain, of the total alkaloids of Ipecacuanha, calculated as emetine.

KAOLINUM LEVE

[Kaolin. Lev.]

Light Kaolin

Light Kaolin is a purified native aluminium silicate free from gritty particles.

Characters. A light, white powder; odourless and tasteless. Insoluble in *water,* and in mineral acids.

Tests for Identity. Yields the Tests for Identity described under 'Kaolinum Ponderosum'.

Tests for Purity. Complies with the Tests for Purity described under 'Kaolinum Ponderosum'.

Transfer 5 grammes to a stoppered cylinder about 40 millimetres in diameter and about 16 centimetres in length, add 60 millilitres of a 1 per cent. w/v solution of *sodium pyrophosphate* in *water* and shake thoroughly; allow the suspension to stand for five minutes. From a point about 5 centimetres below the surface of the liquid, draw off 50 millilitres of the suspension by means of a pipette without disturbing the sediment. To the liquid remaining, add 50 millilitres of *water*, shake, allow to stand for five minutes, and draw off 50 millilitres of the suspension in the same way as before. Repeat the operation until a total of 400 millilitres of suspension have been drawn off under the prescribed conditions. Transfer the residue to a tared evaporating dish, evaporate the supernatant liquid on a water-bath; the residue, after drying at 100° for fifteen minutes weighs not more than 0·025 gramme (limit of coarse particles).

Transfer 20 grammes to a 1-litre stoppered cylinder, add sufficient *water* at 20° to produce 1000 millilitres and shake very vigorously for two minutes. Allow the suspension to stand at 20° for twenty minutes. By means of a pipette, draw off 25 millilitres from a point 10 centimetres below the surface of the liquid; the *specific gravity* (*20°/20°*) of the sample of suspension removed is not less than 1·0115 (limit of particles larger than 10 microns in diameter).

Return the sample to the suspension remaining in the cylinder; shake very vigorously for two minutes. Allow to stand for three-and-a-half hours at 20°. Draw off 25 millilitres of the suspension from a point 10 centimetres below the surface of the liquid; the *specific gravity* (*20°/20°*) of the sample of suspension removed is not less than 1·0091 (limit of particles larger than 3 microns in diameter).

DOSES

Metric.	**Imperial.**
15 to 60 grammes.	**$1/2$ to 2 ounces.**

NOTE.—When Kaolinum or Kaolin is prescribed or demanded, Light Kaolin shall be dispensed or supplied.

Heavy Kaolin is used in making Poultice of Kaolin.

KAOLINUM PONDEROSUM

[Kaolin. Pond.]

Heavy Kaolin

Heavy Kaolin is a native aluminium silicate, powdered and freed from gritty particles by elutriation.

Characters. A soft whitish powder.

Insoluble in *water*, and in mineral acids.

Tests for Identity. Fuse 1 gramme with 2 grammes of *anhydrous sodium carbonate,* digest the residue with *water,* and filter; acidify the filtrate with *hydrochloric acid,* evaporate to dryness, and digest the residue with *dilute hydrochloric acid*; a residue of silica is obtained, and the acid solution yields the *reactions* characteristic of aluminium.

Tests for Purity. Boil 1 gramme with 50 millilitres of *N/5 hydrochloric acid* for five minutes, filter, and evaporate the filtrate; the residue, after ignition, weighs not more than 0·01 gramme (limit of soluble matter).

Boil 1 gramme with 20 millilitres of *water* for five minutes, and filter; the filtrate complies with the *limit test for chlorides.*

Arsenic limit, 2 parts per million. *Lead limit,* 5 parts per million.

Loses, on ignition at a red heat, not more than 15 per cent. of its weight.

Preparation. Cataplasma Kaolini.

See Note under 'Kaolinum Leve'.

LIQUOR CHLOROXYLENOLIS

[Liq. Chloroxylenol.]

Solution of Chloroxylenol

Synonym. Roxenol.

Chloroxylenol	50 grammes
Terpineol	100 millilitres
Alcohol (95 per cent.) . .	120 millilitres
Ricinoleic Acid	50 grammes
Solution of Sodium Hydroxide	a sufficient quantity
Distilled Water, sufficient to produce	1000 millilitres

Mix together the Ricinoleic Acid and 50 millilitres of the Alcohol (95 per cent.) and reserve 3 millilitres of the solution. To the remainder gradually add, with constant stirring, the Solution of Sodium Hydroxide until a few drops of the resulting soap solution gives a pink colour with *solution of phenolphthalein*, and add the reserved solution. Dissolve the Chloroxylenol in the remainder of the Alcohol (95 per cent.), mix with the Terpineol, add the mixture to the soap solution, and finally add sufficient Distilled Water to produce the required volume.

In making Solution of Chloroxylenol the Alcohol (95 per cent.) may be replaced by Industrial Methylated Spirit, diluted so as to be of equivalent alcoholic strength, provided that the law and the statutory regulations governing the use of Industrial Methylated Spirit are observed.

Characters. A yellow to amber coloured liquid; odour, that of terpineol; soapy to the touch. When diluted with nineteen times its volume of *water* it gives a white emulsion from which oily globules or crystals do not separate after standing for twenty-four hours.

MAGNESII TRISILICAS

[Mag. Trisil.]

Magnesium Trisilicate

Fourth Addendum to the British Pharmacopœia, 1932, page 19, lines 10 and 11.

The requirement for silicon is changed from

"silicon equivalent to not less than 68·5 per cent., and not more than 69·5 per cent., of SiO_2"

to "silicon equivalent to not less than 66 per cent., and not more than 69·5 per cent., of SiO_2".

MENAPHTHONUM

[Menaphthon.]

Menaphthone

Synonym. Menadione.

$\underline{\mathrm{CH:CH{\cdot}CH:CH{\cdot}\overline{C:C}}}\overline{\mathrm{{\cdot}CO{\cdot}CH:C(CH_3){\cdot}CO}}$ Mol. Wt. 172·1

Menaphthone is 2-methyl-1 : 4-naphthaquinone, and may be prepared by the oxidation of 2-methylnaphthalene with hydrogen peroxide or chromium trioxide. It contains not less than 98·5 per cent. of $C_{11}H_8O_2$, calculated with reference to the substance dried over *sulphuric acid* in a vacuum desiccator.

Characters. A bright yellow, crystalline powder; odour, faint yet characteristic; irritating to mucous membranes and skin; decomposes on exposure to sunlight, darkening in colour to light brown.

Insoluble in *water*; slightly soluble in *alcohol (95 per cent.)*; soluble in about 50 parts of fixed oils.

Test for Identity. Dissolve about 0·0005 gramme in 5 millilitres of *alcohol (95 per cent.)*; add 2 millilitres of *strong solution of ammonia* and a few drops of *ethyl cyanoacetate*; a violet coloration is produced; add 5 millilitres of *test-solution of sodium hydroxide*, a brownish-yellow colour is produced. The violet colour is destroyed on the addition of acid or on exposure to sunlight.

Tests for Purity. *Melting-point*, 105° to 107°.

Incinerate 0·5 gramme in a platinum crucible and fuse the residue with about 0·01 gramme of a mixture of 1·75 parts of *anhydrous potassium carbonate*, 1·35 parts of *anhydrous sodium carbonate* and 1 part of *sodium peroxide*; cool. Dissolve the residue in 10 millilitres of *water*, acidify the solution with *dilute sulphuric acid* and add sufficient *water* to produce 25 millilitres. To 5 millilitres of this solution add 4 drops of *solution of diphenylcarbazide* and sufficient *water* to produce 10 millilitres; the violet colour produced is not deeper than that produced by acidifying 1 millilitre of a 0·00283 per cent. w/v solution of *potassium dichromate* in *water* with *dilute sulphuric acid*, adding 4 drops of *solution of diphenylcarbazide* and sufficient *water* to produce 10 millilitres (limit of chromium).

Loses, when dried over *sulphuric acid* in a vacuum desiccator, not more than 0·2 per cent. of its weight.

Leaves, on incineration, not more than 0·05 per cent. of residue.

Assay. Dissolve about 0·2 gramme, accurately weighed, in a mixture of 10 millilitres of *alcohol (95 per cent.)* and 15 millilitres of *glacial acetic acid*; add 4 grammes of *anhydrous sodium carbonate* and 25 millilitres of a 10 per cent. w/v solution of *sodium potassium tartrate* in *water*; titrate with *N/10 titanous chloride* in an atmosphere of carbon dioxide, using 3 drops of a 0·1 per cent. solution of *potassium indigodisulphonate* in *water* as indicator. Each millilitre of *N/10 titanous chloride* is equivalent to 0·008603 gramme of $C_{11}H_8O_2$.

Storage. Menaphthone should be kept in a well-closed container protected from light.

DOSES

Metric.	**Imperial.**
By intramuscular injection.	
0·005 to 0·01 gramme.	**$^1/_{12}$ to $^1/_6$ grain.**

MEPACRINÆ HYDROCHLORIDUM

[Mepacr. Hydrochlor.]

Mepacrine Hydrochloride

Synonym. Quinacrine Hydrochloride.

$C_{23}H_{30}ON_3Cl, 2HCl, 2H_2O$. Mol. Wt. 508·7

Mepacrine Hydrochloride is the dihydrochloride of 2-chloro-5-(ω-diethylamino-α-methylbutylamino)-7-methoxyacridine, and may be prepared by the condensation of ω-diethylamino-α-methylbutylamine with 2 : 5 dichloro-7-methoxyacridine and converting the base into the dihydrochloride. It contains not less than 99·0 per cent. of $C_{23}H_{30}ON_3Cl,2HCl$ calculated with reference to the substance dried at 130°.

Characters. A bright yellow, crystalline powder; odourless; taste, bitter.

Soluble in about 40 parts of *water*, giving a clear yellow solution.

Tests for Identity. Dissolve 0·5 gramme in 20 millilitres of *water* and use the solution for the following tests:—

To 5 millilitres add *dilute solution of ammonia* in slight excess; a yellow to orange-coloured pasty precipitate is formed which adheres to the side of the tube and is readily soluble in *ether*.

To 5 millilitres add 1 millilitre of *dilute nitric acid*; a yellow crystalline precipitate is formed.

To 5 millilitres add 1 millilitre of *test-solution of mercuric chloride*; a yellow precipitate is formed.

To the remainder of the solution add a slight excess of *dilute solution of ammonia*, shake vigorously and filter; the filtrate gives the *reactions* characteristic of chlorides.

Tests for Purity. *Reaction* of a 2 per cent. w/v solution in *water*, *p*H 3 to 5.

Shake 0·5 gramme, finely powdered, in a stoppered flask with 20 millilitres of *anæsthetic ether* for one hour, and filter; the filtrate shows no greater fluorescence than that exhibited by a solution of 1·25 milligrams of *chloromethoxyacridone* in 100 millilitres of *anæsthetic ether* (limit of 2-chloro-7-methoxyacridone).

Loses, when dried at 130°, not less than 6 per cent., and not more than 8 per cent., of its weight.

Assay. Dissolve about 0·6 gramme, accurately weighed, in 30 millilitres of *water* in a 250-millilitre separator, add 10 millilitres of *N/1 sodium hydroxide*, and extract the base by shaking with 50 millilitres of *chloroform* and then with successive quantities, each of 25 millilitres, of *chloroform* until *complete extraction* is effected; wash the mixed chloroform solutions with two successive quantities, each of 5 millilitres, of *water*; remove the solvent by evaporation; add 5 millilitres of dry *acetone*, evaporate, dry at 100° and weigh. Each gramme of the residue is equivalent to 1·1825 grammes of $C_{23}H_{30}ON_3Cl,2HCl$.

DOSES

Metric.	Imperial.
0·05 to 0·1 gramme.	**$^3/_4$ to $1^1/_2$ grains.**

These doses correspond approximately to 0·04 to 0·08 gramme ($^3/_5$ to $1^1/_5$ grain) of the base, 2-chloro-5-(ω-diethylamino-α-methylbutylamino)-7-methoxyacridine.

NOTE.—See Notice Concerning Patents, Third Addendum to the British Pharmacopœia, 1932, page viii.

MEPACRINÆ METHANOSULPHONAS

[Mepacr. Methanosulph.]

Mepacrine Methanesulphonate

$C_{23}H_{30}ON_3Cl, 2CH_3SO_3H,H_2O$. Mol. Wt. 609·9

Mepacrine methanesulphonate is 2-chloro-5-(ω-diethylamino-α-methylbutylamino)-7-methoxyacridine dimethanesulphonate and may be prepared by treating mepacrine in alcoholic solution with methanesulphonic acid and precipitating the methanesulphonate with ether. It contains not less than 99 per cent. of $C_{23}H_{30}ON_3Cl, 2CH_3SO_3H$, calculated with reference to the substance dried at 130°.

Characters. A bright yellow, crystalline solid; odourless; taste, bitter.

Soluble in 3 parts of *water* and in 36 parts of *alcohol (95 per cent.)*.

Tests for Identity. Dissolve 0·5 gramme in 20 millilitres of *water* and use the solution for the following tests:—

To 5 millilitres add *dilute solution of ammonia* in slight excess; a yellow to orange coloured pasty precipitate is formed which adheres to the side of the tube and is readily soluble in *ether*.

To 5 millilitres add 1 millilitre of *dilute nitric acid*; a yellow crystalline precipitate is formed.

To 5 millilitres add 1 millilitre of *test-solution of mercuric chloride*; a yellow precipitate is formed.

The remainder of the solution gives no *reaction* characteristic of sulphates.

Fuse 0·1 gramme with *anhydrous sodium carbonate*, extract with *water* and filter; the filtrate gives the *reactions* characteristic of sulphates.

Tests for Purity. *Reaction* of a 2 per cent. w/v solution in *water*, *p*H 3 to 5.

Shake 0·5 gramme, finely powdered, in a stoppered flask with 20 millilitres of *anæsthetic ether* for one hour and filter; the filtrate shows no greater fluorescence than that exhibited by a solution of 0·25 milligram of *chloromethoxyacridone* in 100 millilitres of *anæsthetic ether* (limit of 2-chloro-7-methoxyacridone).

Loses, when dried at 130°, not less than 2 per cent. and not more than 4 per cent. of its weight.

Assay. Carry out the Assay as directed under 'Mepacrinæ Hydrochloridum'. Each gramme of the residue is equivalent to 1·481 grammes of $C_{23}H_{30}ON_3Cl,2CH_3SO_3H$.

Sterilisation of a Solution. Mepacrine Methanesulphonate is prepared in sterile solution for parenteral injection by dissolving it in the requisite amount of Sterilised Water, immediately before use.

DOSES

Metric.	**Imperial.**
By intramuscular injection.	
0·05 to 0·1 gramme.	**$^3/_4$ to $1^1/_2$ grains.**

These doses correspond approximately to 0·03 to 0·06 gramme) $^1/_2$ to 1 grain) of the base, 2-chloro-5-(ω-diethylamino-α-methylbutylamino)-7-methoxyacridine.

NOTE.—See Notice Concerning Patents, Third Addendum to the British Pharmacopœia, 1932, page viii.

NICOTINAMIDUM

[Nicotinamid.]

Nicotinamide

Synonym. Nicotinic Acid Amide.

$\overbrace{\mathrm{CH : CH{\cdot}CH : N{\cdot}CH : C}}\mathrm{{\cdot}CONH_2}$ Mol. Wt. 122·1

Nicotinamide is pyridine-3-carboxylic acid amide, and may be prepared by the action of thionyl chloride on nicotinic acid, and treatment of the resulting acid chloride with ammonia. It contains not less than 98·5 per cent. of $C_6H_6ON_2$, calculated with reference to the substance dried over *sulphuric acid* in a vacuum desiccator for eighteen hours.

Characters. A white, crystalline powder; almost odourless; taste, bitter.

Soluble in 1 part of *water*, in about 1·5 parts of *alcohol* (*95 per cent.*) and in about 10 parts of *glycerin* at 25°; slightly soluble in *ether*.

Tests for Identity. Heat about 0·01 gramme in a dry tube; pyridine, recognisable by its odour, is evolved.

To 2 millilitres of a 0·1 per cent. w/v solution in *water*, add 6 millilitres of *solution of cyanogen bromide* and 1 millilitre of a 2·5 per cent. w/v solution of *aniline* in *water*; a golden-yellow colour is produced.

Boil 0·02 gramme with 5 millilitres of *test-solution of sodium hydroxide*; the odour of ammonia is recognisable (distinction from nicotinic acid).

Tests for Purity. *Melting-point*, 128° to 131°.

A 10 per cent. w/v solution in *water* is neutral to *solution of litmus*.

0·25 gramme, dissolved in 10 millilitres of freshly boiled and cooled *water* requires for neutralisation not more than 0·25 millilitre of *N/10 sodium hydroxide*, *solution of phenolphthalein* being used as indicator (limit of acid).

Dissolve 0·2 gramme in 5 millilitres of *sulphuric acid*; not more than a faint yellow colour is produced (limit of readily carbonisable substances).

Arsenic limit, 2 parts per million. *Lead limit*, 10 parts per million.

Loses, when dried over *sulphuric acid* in a vacuum desiccator for eighteen hours, not more than 0·5 per cent. of its weight.

Leaves, on incineration, not more than 0·1 per cent. of residue.

Assay. Boil gently about 0·3 gramme, accurately weighed, with 200 millilitres of *water* and 75 millilitres of *test-solution of sodium hydroxide* for twenty minutes in an ammonia distillation apparatus, collecting any distillate in 40 millilitres of *N/10 sulphuric acid*; boil vigorously to complete the distillation of the ammonia and titrate the excess of acid with *N/10 sodium hydroxide* using *solution of methyl red* as indicator. Repeat the operation without the nicotinamide. The difference between the two titrations represents the acid required to neutralise the ammonia formed from the nicotinamide. Each millilitre of *N/10 sulphuric acid* is equivalent to 0·01221 gramme of $C_6H_6ON_2$.

Storage. Nicotinamide should be kept in a well-closed container.

DOSES

Metric.	Imperial.
0·02 to 0·1 gramme.	$^{1}/_{3}$ to $1^{1}/_{2}$ grains.

PAMAQUINUM

[Pamaquin.]

Pamaquin

The statement of doses is amended to

DOSES

Metric.	Imperial.
0·025 to 0·05 gramme.	$^{2}/_{5}$ to $^{4}/_{5}$ grain.

These doses correspond approximately to 0·01 to 0·02 gramme ($^{1}/_{6}$ to $^{1}/_{3}$ grain) of the base, 6-methoxy-8-(ω-diethylamino α-methylbutyl)-aminoquinoline.

PARAFFINUM MOLLE ALBUM

[Paraff. Moll. Alb.]

White Soft Paraffin

When White Soft Paraffin is prescribed, Yellow Soft Paraffin may be dispensed. Yellow Soft Paraffin may be used in place of White Soft Paraffin in making the preparations of the British Pharmacopœia.

RIBOFLAVINA

[Riboflav.]

Riboflavine

Synonyms. Riboflavin : Lactoflavin.

$C_{17}H_{20}O_6N_4$ . . . . . Mol. Wt. 376·2

Riboflavine is 6 : 7-dimethyl-9-(*d*-1′-ribityl)-*iso*alloxazine. It may be obtained from yeast and other natural sources or by synthesis. It contains not less than 14·5 per cent., and not more than 15·2 per cent., of nitrogen calculated with reference to the substance dried for eighteen hours over *sulphuric acid.*

Characters. An orange-yellow, crystalline powder; odour, slight; taste, slightly bitter.

Slightly soluble in *water*; more soluble in *physiological solution of sodium chloride* and in a 10 per cent. w/v solution of *urea*; sparingly soluble in *alcohol*; insoluble in *ether*, and in *chloroform*; soluble in dilute aqueous solutions of alkali hydroxides.

Tests for Identity. *Melting-point*, about 280°, with decomposition, the material being introduced into the heating bath at 250°, and the rate of heating being 5° per minute.

Dissolve 0·001 gramme in 100 millilitres of *water*; the solution is pale greenish-yellow to transmitted light and shows an intense yellowish-green fluorescence, which disappears on the addition of mineral acids or alkalis.

A saturated solution in *water* is neutral to *litmus paper*.

Tests for Purity. Shake 0·025 gramme with 10 millilitres of *chloroform* for five minutes; filter; the colour is not deeper than that of a solution prepared by mixing 3 millilitres of *N/10 potassium dichromate* with sufficient *water* to produce 1000 millilitres (limit of lumiflavin).

Specific rotation at 20° in a 0·5 per cent. w/v solution in a mixture of 1·5 mils of *N/10 alcoholic solution of potassium hydroxide* (carbonate free) and sufficient freshly boiled and cooled *water* to produce 10 millilitres, calculated with reference to the substance dried in the dark for eighteen hours over *sulphuric acid*, the determination being carried out within thirty minutes of the preparation of the solution, − 110° to − 130°.

0·5 gramme loses, when dried for eighteen hours over *sulphuric acid* in the dark, not more than 0·0075 gramme.

0·1 gramme leaves, on incineration, not more than 0·0005 gramme of residue.

Assay. Transfer about 0·1 gramme, accurately weighed, into a long-necked flask, add 1 gramme of *anhydrous sodium sulphate*, 0·05 gramme of powdered *copper sulphate* and 3·5 millilitres of *nitrogen-free sulphuric acid*; heat briskly and continue heating for not less than two hours after the liquid is decolorised. Cool, add 30 millilitres of *water*, transfer to an ammonia distillation apparatus, add 20 millilitres of a 30 per cent. w/v solution of *sodium hydroxide* in *water* and a few pieces of granulated *zinc* and distil off the ammonia; collect the distillate in 15 millilitres of *N/10 sulphuric acid* and titrate the excess of acid with *N/10 sodium hydroxide*, using *solution of methyl red* as indicator. Repeat the operation without the riboflavine. The difference between the two titrations represents the acid required to neutralise the ammonia. Each millilitre of *N/10 sulphuric acid* is equivalent to 0·0014008 gramme of nitrogen. Methods of micro-analysis of equivalent accuracy may be substituted for this Assay if desired.

Storage. Riboflavine should be kept in a well-closed container, protected from light. Riboflavine in crystalline powder is not appreciably affected by diffused light, but in solution, especially in the presence of alkalis, it deteriorates on exposure to light.

DOSES

Metric.	Imperial.
0·001 to 0·01 gramme.	$^1/_{60}$ to $^1/_6$ grain.

STILBŒSTROL

[Stilbœstr.]

Stilbœstrol

Synonym. Diethylstilbœstrol.

$HO{\cdot}C_6H_4{\cdot}C(C_2H_5):C(C_2H_5){\cdot}C_6H_4{\cdot}OH$ Mol. Wt. 268·2

Stilbœstrol is 4 : 4′-dihydroxy-α : β-diethylstilbene, and may be prepared by the demethylation of 4 : 4′-dimethoxy-α : β-diethylstilbene, which is obtained from deoxyanisoin by ethylation, conversion of the ethyl derivative to the alcohol by means of magnesium ethyl iodide, and by dehydration of the alcohol. It contains not less than 99 per cent. of $C_{18}H_{20}O_2$.

Characters. Colourless crystals or crystalline powder; odour faint.

Very slightly soluble in *water*; readily soluble in *alcohol (95 per cent.)* and in *ether*; soluble in aqueous solutions of alkali hydroxides.

Test for Identity. Dissolve, in a dry test-tube, about 1 milligram in 5 millilitres of *glacial acetic acid*, add 0·4 millilitre of a 0·1 per cent. v/v solution of *bromine* in *glacial acetic acid* and heat in a water-bath for two minutes; an emerald green colour is produced. To this solution add 1 millilitre of a 1 per cent. v/v solution of *bromine* in *glacial acetic acid* and continue the heating for a further two minutes; place 0·5 millilitre of the resulting solution in a dry test-tube, add 0·5 millilitre of *dehydrated alcohol*, mix and add 10 millilitres of *water*; a reddish-violet colour is produced. Add 5 millilitres of *chloroform*, shake vigorously and allow to separate; the chloroform layer is deeply coloured orange-red and the aqueous layer is almost colourless.

Tests for Purity. *Melting-point* 168° to 171°.

Dissolve 0·2 gramme in 3 millilitres of *N/1 sodium hydroxide* and 3 millilitres of *water*; the opalescence is not greater than that produced after five minutes by 0·5 millilitre of *N/1000 hydrochloric acid* and 0·1 millilitre of *solution of silver nitrate* diluted to 6 millilitres with *water* (limit of dimethoxydiethylstilbene).

1 gramme loses, when dried at 100°, not more than 0·005 gramme; and leaves, on incineration, not more than 0·001 gramme of residue.

Assay. Dissolve about 0·1 gramme, accurately weighed, in 3 millilitres of *acetic anhydride* and heat under a reflux condenser for one hour; add 10 millilitres of *dehydrated alcohol* and continue the heating for half-an-hour; remove all volatile substances by distillation, dry the residue of stilbœstrol acetate at 100° and weigh. Each gramme of residue is equivalent to 0·7615 gramme of $C_{18}H_{20}O_2$.

DOSES

Metric.	Imperial.
0·0005 to 0·002 gramme.	$^1/_{120}$ to $^1/_{30}$ grain.

SULPHANILAMIDUM

[Sulphanilamid.]

Sulphanilamide

Fourth Addendum to the British Pharmacopœia, 1932, page 33, after line 14, *insert* :—

Sterilisation. Sulphanilamide is prepared as a sterile powder by powdering the crystals finely, distributing the powder in the final containers, closing the containers either finally or temporarily, and heating so as to maintain the whole of the powder at 150° for one hour, or at 140° for four hours; the containers which were temporarily closed are then finally closed so as to exclude bacteria. If the containers are closed by means of a plug of non-absorbent cotton wool, the contents are used within one month of sterilisation.

Sulphanilamide which has been sterilised in this manner shows not more than a slight discoloration.

SYRUPUS FERRI PHOSPHATIS CUM QUININA ET STRYCHNINA

[Syr. Ferr. Phosph. c. Quinin. et Strych.]

Syrup of Ferrous Phosphate with Quinine and Strychnine

Synonym. Easton's Syrup.

When this Syrup is prescribed or demanded, Syrupus Ferri Phosphatis cum Strychnina shall be dispensed or supplied.

SYRUPUS FERRI PHOSPHATIS CUM STRYCHNINA

[Syr. Ferr. Phosph. c. Strych.]

Syrup of Ferrous Phosphate with Strychnine

Synonym. Easton's Syrup without Quinine.

Syrup of Ferrous Phosphate with Strychnine contains iron, equivalent to 1·8 per cent. w/v of anhydrous ferrous phosphate, $Fe_3(PO_4)_2$, (limits, 1·62 to 1·98), and 0·0246 per cent. w/v of strychnine (limits, 0·022 to 0·027).

Iron	8·6	grammes
Phosphoric Acid . . .	40	millilitres
Strychnine Hydrochloride .	0·3	gramme
Syrup	560	millilitres
Glycerin	140	millilitres
Distilled Water, sufficient to produce	1000	millilitres

Dilute the Phosphoric Acid with 80 millilitres of Distilled Water; add it to the Iron contained in a flask of suitable size, and heat on a water-bath, until the Iron is dissolved; add the solution to the Strychnine Hydrochloride previously triturated with 30 millilitres of Distilled Water; when solution is complete make up to 250 millilitres with Distilled Water; filter it into the Syrup and Glycerin, previously mixed, and pass sufficient Distilled Water through the filter to produce the required volume.

Assay. *For iron.* Carry out the method for the Assay for iron described under 'Syrupus Ferri Phosphatis Compositus'. Each millilitre of *N/10 titanous chloride* is equivalent to 0·01192 gramme of $Fe_3(PO_4)_2$.

For strychnine. Mix in a separator about 100 millilitres, accurately weighed, with 5 grammes of *sodium citrate,* dissolved in 100 millilitres of *water.* Add 30 millilitres of *test-solution of sodium hydroxide,* and extract with successive quantities of *chloroform,* until *complete extraction* of the alkaloid is effected, washing each chloroform solution with the same 10 millilitres of *water*, contained in a second separator. Mix the chloroform solutions, wash with 10 millilitres of *water*, evaporate nearly all the chloroform, add to the residue 5 millilitres of *alcohol (95 per cent.)*, evaporate, dry at 100° for half an hour. Dissolve the residue in 10 millilitres of *N/50 sulphuric acid* and titrate with *N/50 sodium hydroxide*, using *solution of methyl red* or *tincture of cochineal* as indicator. Each millilitre of *N/50 sulphuric acid* is equivalent to 0·006684 gramme of strychnine.

Determine the *specific gravity* (15·5°/15·5°), and calculate the proportions of anhydrous ferrous phosphate, and of strychnine, weight in volume.

Storage. Syrup of Ferrous Phosphate with Strychnine should be kept in a completely-filled, well-closed container, and protected from light.

DOSES

Metric.	Imperial.
2 to 4 mils.	30 to 60 minims.

Syrup of Ferrous Phosphate with Strychnine contains in 4 mils the equivalent of 0·072 gramme of anhydrous ferrous phosphate, or about 0·034 gramme of iron, and about 0·0012 gramme of Strychnine Hydrochloride; and in 60 minims the equivalent of about 1 grain of anhydrous ferrous phosphate, or about $^1/_2$ grain of iron and about $^1/_{60}$ grain of Strychnine Hydrochloride.

TERPINEOL

[Terpineol.]

Terpineol

$C_{10}H_{18}O$ . . . . . Mol. Wt. 154·1

Terpineol, $C_{10}H_{17}{\cdot}OH$, is a mixture of isomers in which *dl*-α-terpineol largely predominates. It may be prepared by treating terpin hydrate with a dilute mineral acid and fractionating the crude product by distillation.

Characters. A colourless, slightly viscous, liquid, which may partially solidify; odour, pleasant; taste, characteristic, bitter and slightly pungent.

Insoluble in *water*; soluble in *alcohol* and in *ether*.

Tests for Identity and Purity. Soluble in 2 volumes of *alcohol (70 per cent.)*; *specific gravity* (15·5°/15·5°), 0·934 to 0·938; *refractive index* at 20°, 1·4825 to 1·4855; *boiling-point*, not less than 96 per cent. v/v distils between 214° and 220°.

Neutral to moistened *litmus paper*.

UNGUENTUM ACIDI BORICI

[Ung. Acid. Boric.]

Ointment of Boric Acid

Synonym. Boric Acid Ointment.

Boric Acid, finely sifted	10 grammes
Hydrous Ointment	990 grammes

Triturate the Hydrous Ointment in a warm mortar until soft; sift in the Boric Acid; stir until cold.

UNGUENTUM ACIDI SALICYLICI

[Ung. Acid. Salicyl.]

Ointment of Salicylic Acid

Synonym. Salicylic Acid Ointment.

Salicylic Acid, finely sifted	20 grammes
Hydrous Ointment	980 grammes

Triturate the Hydrous Ointment in a warm mortar until soft; sift in the Salicylic Acid; stir until cold.

UNGUENTUM ACIDI TANNICI

[Ung. Acid. Tann.]

Ointment of Tannic Acid

Synonym. Tannic Acid Ointment.

Tannic Acid	200 grammes
Distilled Water	400 millilitres
Ointment of Wool Alcohols	400 grammes

Dissolve the Tannic Acid in the Distilled Water; melt the Ointment of Wool Alcohols; add the solution of the Tannic Acid to the melted base and stir vigorously until cold.

UNGUENTUM ALCOHOLIUM LANÆ

[Ung. Alcoh. Lanæ]

Ointment of Wool Alcohols

Wool Alcohols	60 grammes
Hard Paraffin	240 grammes
White Soft Paraffin, or Yellow Soft Paraffin . . .	100 grammes
Liquid Paraffin . . .	600 grammes

Melt together; stir, until cold.

UNGUENTUM AQUOSUM

[Ung. Aquos.]

Hydrous Ointment

Ointment of Wool Alcohols .	500 grammes
Distilled Water . . .	500 millilitres

Melt the Ointment of Wool Alcohols and add the Distilled Water gradually with constant stirring; triturate vigorously until a smooth cream is obtained; stir until cold.

Storage. Hydrous Ointment, and ointments made from it, should be kept in well-closed containers made from non-absorbent material, in a cool place. If, on storage, some aqueous liquid separates from such ointments, it is readily re-incorporated by trituration.

UNGUENTUM DITHRANOLIS

[Ung. Dithranol.]

Ointment of Dithranol

Dithranol	1 gramme
Yellow Soft Paraffin . .	999 grammes

Triturate the Dithranol with a portion of the Yellow Soft Paraffin until smooth; gradually add the remainder, mixing thoroughly by trituration.

UNGUENTUM HAMAMELIDIS

[Ung. Hamam.]

Ointment of Hamamelis

Liquid Extract of Hamamelis	100 millilitres
Distilled Water	400 millilitres
Ointment of Wool Alcohols	500 grammes

Mix the Liquid Extract of Hamamelis with the Distilled Water; melt the Ointment of Wool Alcohols; add the mixture to the melted base and stir until cold.

In making Ointment of Hamamelis the Liquid Extract of Hamamelis may be replaced by a liquid extract of hamamelis prepared with Industrial Methylated Spirit, suitably diluted, provided that the law and the statutory regulations governing the use of Industrial Methylated Spirit are observed.

UNGUENTUM HYDRARGYRI

[Ung. Hydrarg.]

Ointment of Mercury

Ointment of Mercury contains Mercury equivalent to 30 per cent. of Hg (limits, 29 to 31).

Mercury	300 grammes
Oleated Mercury	15 grammes
Wool Fat	430 grammes
White Beeswax	70 grammes
White Soft Paraffin	185 grammes

Add the Mercury gradually to the Oleated Mercury in a warm mortar, with constant trituration, until all the Mercury is dispersed. Melt together the Wool Fat, White Beeswax and White Soft Paraffin, allow to cool partially, add about 15 grammes to the mercurial mixture and continue the trituration until metallic globules cease to be visible when examined under a lens magnifying ten diameters; incorporate the remainder of the mixture of Wool Fat, White Beeswax and White Soft Paraffin.

Assay. Boil gently for five minutes about 1 gramme, accurately weighed, with 10 millilitres of *nitric acid* and 25 millilitres of *water*; cool, and dilute with 25 millilitres of *water*. Decant the acid solution on to a moistened filter paper, filter, and wash the melted fat several times with small quantities of hot *water*. To the warm mixture of filtrate and washings add sufficient *solution of potassium permanganate* to produce a permanent pink colour. Decolourise by the addition of a trace of *ferrous sulphate*, and titrate with *N/10 ammonium thiocyanate*, using *solution of ferric ammonium sulphate* as indicator. Each millilitre of *N/10 ammonium thiocyanate* is equivalent to 0·01003 gramme of Hg.

Preparations. Unguentum Hydrargyri Compositum.
Unguentum Hydrargyri Dilutum.

See Note under 'Unguentum Hydrargyri Dilutum, Fourth Addendum to the British Pharmacopœia, 1932, page 39.

UNGUENTUM HYDRARGYRI AMMONIATI

[Ung. Hydrarg. Ammon.]

Ointment of Ammoniated Mercury

Synonyms. Ammoniated Mercury Ointment: White Precipitate Ointment.

Ammoniated Mercury, finely powdered	10 grammes
Hydrous Ointment . . .	990 grammes

Triturate the Ammoniated Mercury with a portion of the Hydrous Ointment, until smooth; gradually add the remainder, mixing thoroughly by trituration.

UNGUENTUM HYDRARGYRI OLEATI

[Ung. Hydrarg. Oleat.]

Ointment of Oleated Mercury

Synonym. Mercuric Oleate Ointment.

Oleated Mercury . . .	250 grammes
Hydrous Ointment . . .	750 grammes

Mix by trituration.

UNGUENTUM HYDRARGYRI SUBCHLORIDI

[Ung. Hydrarg. Subchlor.]

Ointment of Mercurous Chloride

Synonyms. Mercurous Chloride Ointment: Calomel Ointment.

Mercurous Chloride . . .	200 grammes
Hydrous Ointment . . .	800 grammes

Triturate the Mercurous Chloride with a portion of the Hydrous Ointment, until smooth; gradually add the remainder, mixing thoroughly by trituration.

UNGUENTUM SULPHURIS

[Ung. Sulphur.]

Ointment of Sulphur

Synonym. Sulphur Ointment.

Sublimed Sulphur, finely sifted .	100 grammes
Hydrous Ointment . . .	900 grammes

Triturate the Sublimed Sulphur with a portion of the Hydrous Ointment, until smooth; gradually add the remainder, mixing thoroughly by trituration.

UNGUENTUM ZINCI OLEATIS

[Ung. Zinc. Oleat.]

Ointment of Zinc Oleate

Synonym. Zinc Oleate Ointment.

Zinc Sulphate	30 grammes
Hard Soap, in shavings . .	90 grammes
Distilled Water, boiling	of each a sufficient quantity
Hydrous Ointment	

Dissolve the Zinc Sulphate in 60 millilitres of Distilled Water. Dissolve the Hard Soap in 600 millilitres of Distilled Water. Mix the solutions; heat to boiling; allow the melted zinc oleate to rise to the surface; cool, until it solidifies; pour off the aqueous liquid; boil the zinc oleate with successive quantities of Distilled Water, until the washings afford not more than a slight *reaction* for sulphates. Drain the washed zinc oleate, and melt it on a water-bath with an equal weight of Hydrous Ointment; stir, until cold.

UNGUENTUM ZINCI OXIDI

[Ung. Zinc. Oxid.]

Ointment of Zinc Oxide

Synonyms. Unguentum Zinci; Zinc Ointment.

Zinc Oxide, finely sifted	150 grammes
Hydrous Ointment	850 grammes

Triturate the Zinc Oxide with a portion of the Hydrous Ointment, until smooth; gradually add the remainder, mixing thoroughly by trituration.

UNGUENTUM ZINCI OXIDI ANHYDROSUM

[Ung. Zinc. Oxid. Anhyd.]

Anhydrous Ointment of Zinc Oxide

Zinc Oxide, finely sifted	150 grammes
Simple Ointment	850 grammes

Triturate the Zinc Oxide with a portion of the Simple Ointment, until smooth; gradually add the remainder mixing thoroughly by trituration.

APPENDICES

APPENDIX I

MATERIALS AND SOLUTIONS EMPLOYED IN TESTS

Add the following reagents :—

Diphenylcarbazide : $(C_6H_5{\cdot}NH{\cdot}NH)_2CO$ of Reagent purity.

Diphenylcarbazide, Solution of : a 0·2 per cent. w/v solution of *diphenylcarbazide* in a mixture of 10 millilitres of *glacial acetic acid* and 90 millilitres of *alcohol* (*0 per cent.*).

Ethyl Cyanoacetate : $CN{\cdot}CH_2{\cdot}COOC_2H_5$, of Reagent purity.

Potassium Indigodisulphonate : of Reagent purity.

Sodium : of Reagent purity.

Sodium Peroxide : of Reagent purity.

Sodium Pyrophosphate : $Na_2P_4O_7,10H_2O$, of Reagent purity.

APPENDIX IV

A. *DETERMINATION OF FREEZING-POINT, OF MELTING-POINT, AND OF SOLIDIFYING-POINT*

METHOD III.

Add the following: ***Wool Alcohols.***

APPENDIX VI

QUANTITATIVE TEST FOR LEAD

In the Tables, British Pharmacopœia, 1932, pages 553 to 558, insert :—

Kaolinum Ponderosum	7[•]	5	2[•]	5	2·5	**5**
Nicotinamidum	7	5	2	5	5	**10**

[•] **Solution prepared by boiling the heavy kaolin with the *aceticacid PbT*, diluted with 25 millilitres of *water* and filtering.**

APPENDIX VII

QUANTITATIVE TEST FOR ARSENIC

METHODS OF PREPARING THE SOLUTION TO BE EXAMINED

Add the following Methods:—

Ferri Carbonas Saccharatus. Limit **10** parts per million.

Mix 1 gramme with 1 gramme of *calcium hydroxide As T.* and 2 millilitres of *water* in a porcelain dish, dry, and ignite gently; dissolve the residue in 20 millilitres of *brominated hydrochloric As T.* and 10 millilitres of *water*; transfer to a small flask, and add sufficient *solution of stannous chloride As T.* to remove the yellow colour, connect to a condenser, and distil 22 millilitres; to the distillate add 40 millilitres of *water* and 3 drops of *solution of stannous chloride As T.*

Kaolinum Ponderosum. Limit **2** parts per million.

Treat **5** grammes as described under 'Barii Sulphas'.

Nicotinamidum. Limit **2** parts per million

Treat **5** grammes as described under 'Acidum Acetylsalicylicum'.

APPENDIX X

E. *DETERMINATION OF ACETYL VALUE OF WOOL ALCOHOLS*

The acetyl value of a substance is the number of milligrams of potassium hydroxide required to neutralise the acetic acid liberated by the hydrolysis of 1 gramme of the acetylated substance.

(1) Determine the *saponification value* by the method for the *determination of the saponification value of fixed oils and fats.*

(2) Acetylate 10 grammes by the following method:

Place 10 grammes with 20 millilitres of *acetic anhydride* in a long-necked, round-bottomed 200 millilitre flask, attached to a reflux air condenser. Support the flask on a sheet of asbestos in which a hole about 4 centimetres in diameter has been cut, and heat it with a small naked flame, not more than 25 millimetres in height, which does not impinge on the bottom of the flask. Boil gently for two hours, allow the flask to cool, pour into 600 millilitres of *water* contained in a large beaker, add 0·2 gramme of *pumice powder* and heat to boiling for thirty minutes. Cool, transfer to a separator and reject the lower layer. Wash the acetylated product with three or more successive quantities, each of 50 millilitres, of warm *brine*, until the washings are no longer acid to *litmus paper*. Finally shake the oil with 20 millilitres of warm *water* and remove the watery layer as completely as possible. Pour the acetylated oil into a small dish, and add 1 gramme of powdered *anhydrous sodium sulphate*; stir thoroughly and filter the acetylated product through a dry pleated filter.

Determine the *saponification value* of the acetylated substance.

(3) Calculate the acetyl value from the following formula:—

$$\text{Acetyl value} = \frac{(b - a)\ 1335}{1335 - a}$$

where a = saponification value of the substance
b = saponification value of the acetylated substance.

INDEX

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Synonyms appear with cross references.
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